

[283. *Arenaria interpres*. TURNSTONE.—Migrant; rare in near-by localities (about April 26-May 18.) H. G. Smith records one taken at Sloan's Lake, near Denver, on April 26, 1890 (Nid., III, 1896, p. 65), and Cooke records eight seen at Berkeley Lake, near Denver, on May 18, 1900. (Birds of Colo., p. 201.)]

AN INSTANCE OF HYBRIDIZATION IN HUMMING-
BIRDS, WITH REMARKS ON THE WEIGHT OF
GENERIC CHARACTERS IN THE
TROCHILIDÆ.

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WHILE collecting in the vicinity of Nicasio, Marin County, for the Museum of Vertebrate Zoölogy on February 26, 1909, I shot a small hummingbird which I took to be *Selasphorus alleni*. My attention has been called to the fact, however, that it is a hybrid, probably the result of a cross between *Selasphorus alleni* and *Calypte anna*. According to Ridgway, it was with little doubt such a hybrid upon which Gould based his description of *Selasphorus floresii* (Mon. Troch., pt. xxiii, Sept. 1, 1861, pl. 10; Vol. III, 1861, pl. 139), from a specimen taken at Bolanos, State of Oaxaca, Mexico.

There have been to my knowledge previous to this date three definite records only of the taking of this hybrid. One of these is the type of *Selasphorus "floresii,"* taken at Bolanos. The second is a bird found by Walter E. Bryant in a taxidermist's shop in San Francisco (first recorded in 'Forest and Stream,' XXVI, June, 1886, p. 426). This specimen was "shot by a boy" near San Francisco, and had been mounted to serve as an ornament on a hat. The third record is that of the taking of a male specimen at Haywards, California, by W. Otto Emerson (Condor, III, May, 1901, p. 68). Through the courtesy of the latter I have seen this bird. It is almost identical in coloration and size with the hybrid taken by me at Nicasio, though it resembles *Calypte anna* even more than the Marin County bird.

¹ A Contribution from the University of California Museum of Vertebrate Zoölogy

In addition to these definite records Bendire mentions "*floresii*" as having been recorded from Jalisco, Mexico (Life Histories, II, 1895, p. 209); but he does not say upon whose authority the record is made, nor does he give any information upon the subject. The present record is, at all events, the third for California.

The bird (No. 7125, Univ. Calif. Mus. Vert. Zoöl.) is in most characters an intermediate between *Calypte anna* and *Selasphorus aleni* but in general appearance is nearer the former. Like former specimens of "*floresii*" it has the gorget and crown "glowing metallic rose-red." The brilliant crown is not so extensive as in *Calypte anna*, however, and there is a decided *Selasphorus*-like golden tinge to all the iridescent gorget and crown feathers. The feathers of breast, belly, and sides resemble *Calypte anna*, but there are some distinct traces of rufous. The breast is whiter than that of the Anna, but not so white as that of the Allen Hummingbird. The feathers of the occiput, nuchal region, back and rump, and the upper tail-coverts are green with narrow edgings of rufous. The first primary is much narrower than in *Calypte anna*, though its end is rounded rather than pointed. The tail is much less deeply emarginate than that of the Anna, which it nevertheless resembles in general shape. All of the rectrices are marked to a greater or less extent with rufous. The color appears to be rather unevenly distributed, some of the feathers having the basal half of their outer webs, and others a part of their inner webs, rufous. The elongated lateral ruff-like extensions of the gorget are similar to those of *Calypte anna* but not so highly developed.

Taking into account the animal kingdom as a whole it is noted that while hybridization between species is as a rule not common (outside of birds, at least) that between genera is extremely rare. Thayer and Bangs have called attention to the proneness of various hummingbirds to hybridize, and list from California alone four cases of the crossing of the so-called distinct genera (Auk, XXIV, July, 1907, p. 313).

In the light of results obtained from experimentation by Whitman, Beebe, and others, it is a question whether feather differences alone are of sufficient morphologic significance to constitute the characters of genera. Apparently the former genus *Trochilus* has been split up into several genera on the basis of characters of specific importance only.

A moment's consideration is sufficient to convince one that both in separating the genera *Trochilus*, *Selasphorus* and *Calypte*, and in distinguishing between the species within each respective genus, characters of practically equal rank have been used. For example, compare the kind of characters used by Ridgway (Report U. S. Nat. Mus., 1890, p. 340) in diagnosing the genus *Selasphorus*, with those which separate *alleni* from *rufus* within the genus. Feather coloration generally, the form of the outer primary, and the form and coloration of the tail-feathers are perhaps the most important of the "generic" characters. Upon turning to the species descriptions it becomes evident at once that characters of the same importance have been made use of. The clearest distinction between *rufus* and *alleni*, apparently consists in a difference in form of tail-feather, *rufus* possessing a notch on the inner web of the next to the middle pair of rectrices which *alleni* does not have. At the same time the "generic" characters of the most weight concern the form of the feathers of tail and wing. It would seemingly be as reasonable to put *Selasphorus alleni* in one genus and *Selasphorus rufus* in another, as to split up *Trochilus* on the basis of characters of no more weight than those separating these two species.

There are differences between *Calypte*, *Selasphorus* and the present *Trochilus* to be sure, but are the differences of such importance that these subdivisions should be accorded generic rank? The relatively frequent occurrence of hybrids would seem to support a negative answer to this question.

So far, there have been recorded from California hybrids of *Calypte anna* + *Trochilus alexandri*, *Calypte anna* + *Selasphorus alleni*, *Trochilus alexandri* + *Calypte costae*, and *Selasphorus rufus* + *Stellula calliope* (Thayer & Bangs, *l. c.*). It will be observed that the Trochiline hybrids occur only between species whose ranges overlap or adjoin, isolation of habitat therefore being perhaps the main reason why other combinations do not appear.